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Abstract

We aimed to examine missing data in FFQ and to assess the effects on estimating dietary intake by comparing between multiple imputation and zero imputation. We used data from the Okazaki Japan Multi-Institutional Collaborative Cohort (J-MICC) study. A self-administered questionnaire including an FFQ was implemented at baseline (FFQ1) and 5-year follow-up (FFQ2). Missing values in FFQ2 were replaced by corresponding FFQ1 values, multiple imputation and zero imputation. This study was a methodological sub-study of the Okazaki J-MICC study. Of a total of 7585 men and women aged 35 – 79 years at baseline, we analysed data for 5120 participants who answered all items in FFQ1 and at least 50% of items in FFQ2. Among 5120 participants, the proportion of missing data was 3.7%. The increasing number of missing food items in FFQ2 varied with personal characteristics. Missing food items not eaten often in FFQ2 were likely to represent zero intake in FFQ1. Most food items showed that the observed proportion of zero intake was likely to be similar to the probability that the missing value is zero intake. Compared with FFQ1 values, multiple imputation had smaller differences of total energy and nutrient estimates, except for alcohol, than zero imputation. Our results indicate that missing values due to zero intake, namely missing not at random, in FFQ can be predicted reasonably well from observed data. Multiple imputation performed better than zero imputation for most nutrients and may be applied to FFQ data when missing is low.